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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/530,830

04/09/2005

Menghang Xia

21113P

2476

210 7590 10/15/2008  
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EXAMINER

PAK, MICHAEL D

ART UNIT

PAPER NUMBER

1646

MAIL DATE

DELIVERY MODE

10/15/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/530,830	<b>Applicant(s)</b> XIA ET AL.	
	<b>Examiner</b> Michael Pak	<b>Art Unit</b> 1646	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 October 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's arguments filed June 27, 2008, have been fully considered but they are not found persuasive.
2. Claims 1-14 have been cancelled. Claims 15-29 are examined with regard to antagonist method.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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3. Claims 15-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harpold et al. (US 6,090,623) in view of Maher et al. (US 6,686,193) and Bonini et al. (US 6,117,990).

Harpold et al. teach the method of assaying for an antagonist (columns 26-29) using calcium channels expressed in HEK293 cells (columns 23-25 and 61). Harpold et al. teach the method using calcium channels comprising alpha 1c, alpha-2-delta and beta 2a subunits (columns 8-9 and 64). Harpold et al. teach the method using the antagonists with test compounds using control assays (column 27). Harpold et al. teaches the method of adding solutions which does not fully depolarizes the cell (columns 52-53). Harpold et al. does not teach the inward rectifier potassium channel nor Kir 2.3 in the cell. Harpold et al. does not teach fluo-3 nor FLIPR in the methods. Harpold et al. does not teach the divided tissue culture plate.

Maher et al. teach the method of antagonist assays using multiple ion channels including calcium channel and inward rectifier Kir 2.3 using Fluo-3 in 96 well plates (Table 2; columns 39, 42-45, 51, 56 and 73). Maher et al. teach that two or more channels may be monitored simultaneously including potassium channels of the inventions (column 56 and 76). Maher et al. teach the method using the VIPR reader (column 81).

Bonini et al. teach the method of using inward rectifier potassium channel and intracellular calcium measurement using fluo-3 and FLIPR (columns 6 and 10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Harpold et al. to incorporate the teachings of Maher et

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al. to use Kir 2.3 and fluo-3 in 96 well plates (Table 2 and columns 45). One of ordinary skill in the art would have been motivated use multiple ion channels including Kir 2.3 and calcium channel because Maher et al. teach using two or more ion channels to monitor channels simultaneously (column 56 and 76). One of ordinary skill in the art would have been motivated to use the fluo-3 in 96 well plate using pulse field or electrophysiology because of the improvement of the high throughput system taught by Maher et al. (column 45).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method as taught by Harpold et al. and Maher et al. by incorporating the teachings of Bonini et al. of using the FLIPR to measure Fluo-3 for intracellular calcium measurement. One of ordinary skill in the art would have been motivated because the fluorescent measurements using Fluo-3 and FLIPR in calcium measurement is a technique well known to one of ordinary skill in the art and Bonini et al. is an analogous reference.

Applicants argue that each of the reference does not teach all the elements. However, the rejection is based on the teachings from the combination of references cited and not the teachings of the individual references. Bonini et al. teach inward rectifier potassium channels in column 10. Ion channel references are analogous references well known to one of ordinary skill in the art.

4. No claims are allowed.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pak whose telephone number is 571-272-0879. The examiner can normally be reached on 8:00 - 2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Nickol can be reached on 571-272-0835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Pak/  
Primary Examiner, Art Unit 1646  
13 October 2008